

Idaho National Laboratory:

Join the Energy Renaissance



Expanding the frontiers of science

Idaho National Laboratory is one of the largest employers of scientists and engineers in the Intermountain West.

For 60 years, our researchers have been quietly at work, expanding the frontiers of science in areas as diverse as energy supply and national security. From generating the world's first usable amount of electricity from nuclear power to developing breakthrough technologies to detect hidden explosives, treat cancer, remove arsenic from drinking water and make plant wastes usable as an energy source, the scientists and engineers of INL put pioneering science to work to solve real problems for real people.

You, too, could become part of the next generation of contributors putting science and engineering to work at Idaho National Laboratory. To find out more about starting a career at INL, go to <http://www.inl.gov/careers/>.



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Idaho National Laboratory – *Creating the future*

Idaho National Laboratory is one of the U.S. Department of Energy's multiprogram national laboratories. With approximately 4,000 scientists, researchers and support staff, the lab works with national and international governments, universities and industry partners to discover new science and develop, demonstrate and deploy technologies that address the nation's nuclear and renewable energy, national security and environmental sustainability needs. Its core competencies reflect more than a half century of nuclear energy development and decades of experience in basic and applied science research and applied engineering. These legacy capabilities provide the foundation for today's expansive INL research portfolio.

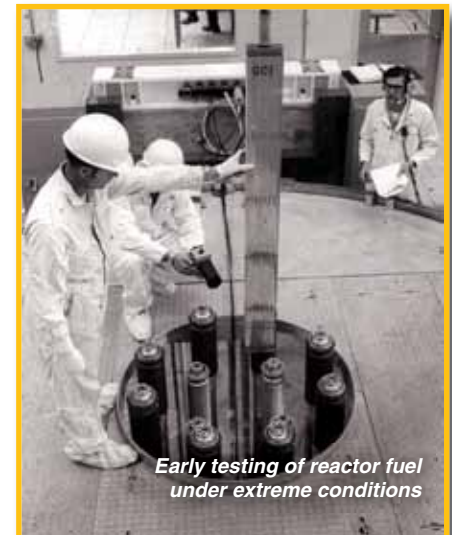
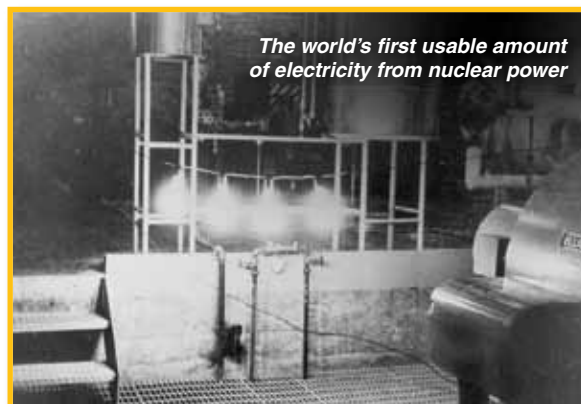
Research, Development, Demonstration and Deployment

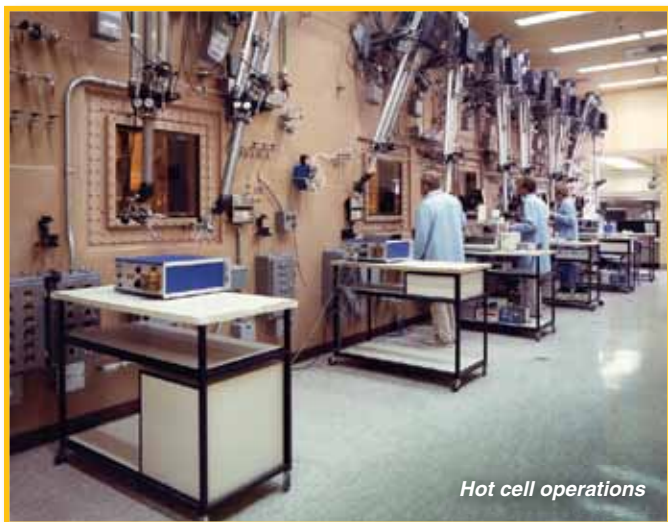
INL has an experienced engineering and technical work force to develop, model, test, demonstrate and validate a variety of engineered systems and processes to tackle specific Department of Energy

and industry-related environmental and energy-efficiency challenges involved with, among other areas, fossil energy and hydrogen production and use – including materials science, plasma technologies, biotechnology and alternate fuel transportation systems. INL also works with industry and venture capitalists to commercialize promising technologies developed at the lab.

Basic and Applied Science Research

The scientific reputation and credentials of INL researchers play a key role in accomplishing research activities, including earth sciences and environmental engineering, biotechnology, physical systems modeling, systems engineering, intelligent automation and remote systems, applied engineering, materials processing, chemical separations and processing, sensing and diagnostics, neutron capture therapy, surface ionization mass spectrometry and fusion safety.





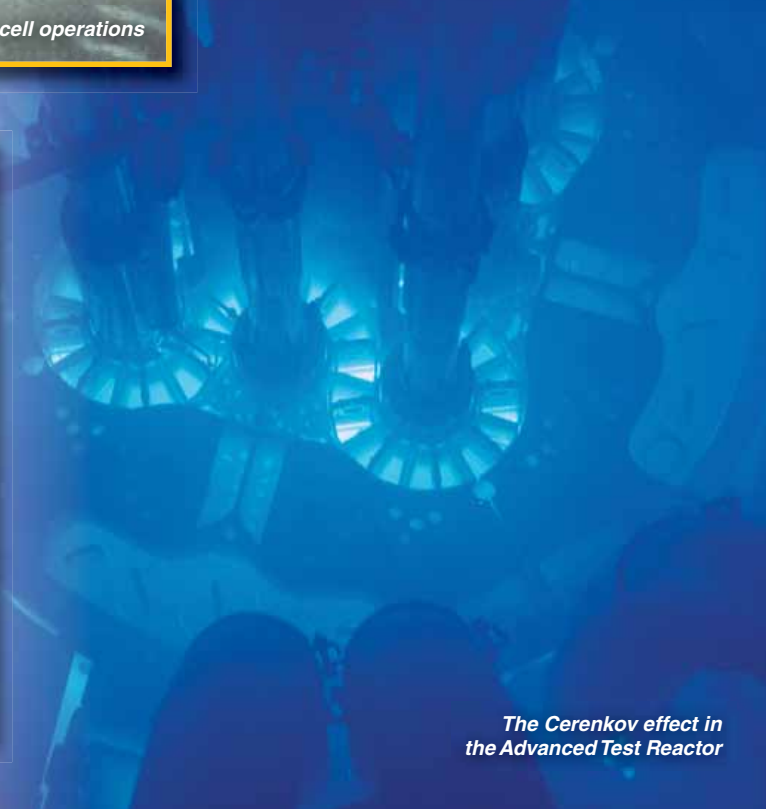
Hot cell operations



Hydrogen production research



Installation of the unique Advanced Test Reactor



The Cerenkov effect in the Advanced Test Reactor

Nuclear Science and Technology – *Developing a crucial energy resource*

Idaho National Laboratory is designated as the nation's lead laboratory for nuclear energy research and development because of its unique history, infrastructure, expertise and partnerships. The nation's confidence in the laboratory has brought major U.S. nuclear energy development programs to INL.

The establishment of INL's Advanced Test Reactor (ATR) as a National Scientific User Facility helps reassert U.S. leadership in nuclear science and technology, and makes it easier for new users – universities, laboratories and industry – to conduct research at the ATR, the nation's most capable fuels and materials test reactor.

Fuel Cycle Research and Development

Researchers at INL are pursuing the development of fuel cycle technologies that will meet the need for economic and sustained nuclear energy production. Lab scientists and engineers are focusing their R&D efforts on supporting the operation of current nuclear power plants, Generation III+ advanced light water reactors and Generation IV advanced reactors. The systems and processes under research and development should enable a significant reduction in the amount of high-level radioactive waste requiring geologic disposal, reduced accumulation of plutonium in civilian spent fuel and the extraction of more useful energy from nuclear fuel.

Generation IV Nuclear Power (Gen IV)

INL is an active participant in Gen IV nuclear systems research, working with industry,

universities, other labs and overseas organizations in an effort to develop and deploy promising advanced reactor technologies by 2030. As an example, INL is collaborating broadly on development of high-temperature gas reactors.

Nuclear Hydrogen

Scientists at INL have made important breakthroughs required for the future, large-scale production of hydrogen. High-temperature electrolysis has the potential of enabling the efficient mass production of hydrogen. The goal is to use nuclear energy to create hydrogen, as part of a multifaceted effort to reduce the nation's demand for oil.

Radioisotope Power Systems and Space Technologies

Radioisotope power systems are used to provide heat and electricity for space exploration missions and select military applications. INL assembled a radioisotope thermoelectric generator (RTG) for the New Horizons mission to Pluto in 2005, and assembled and fueled a specialized RTG for NASA's planned Mars Science Laboratory. Preparations are also under way for the potential future production of lunar surface power reactors.

Medical Applications

INL is helping develop boron neutron capture therapy techniques to treat cancer and alleviate pain, and also has the capability of producing isotopes to power highly specialized radiosurgery devices.





National and Homeland Security – *Protecting our nation and saving lives*

Since its inception in 1949, Idaho National Laboratory has created products and developed solutions that are saving lives from the home front to the battlefield. Today, the laboratory's national and homeland security objectives continue. Recent national and international events – from the global war on terror to the threat of nuclear weapons – have led INL to formulate four national and homeland security mission areas including:

Critical Infrastructure Protection

INL researchers are internationally recognized for their ability to improve physical and cybersecurity operations for the nation's critical infrastructures. Their concentrated efforts and expertise include programs in electric grid reliability, process control systems, cybersecurity and wireless communication systems.

Nuclear Nonproliferation

INL engineers develop advanced nuclear detection technologies, design proliferation-resistant fuels, conduct first responder training and lead numerous coordination and policy efforts to prevent the illicit production, acquisition and transport of nuclear materials. Our expertise and nuclear research facilities create an unmatched location for securing the nuclear fuel cycle and meeting the challenges and demands for safe reactor operations.

Defense Systems and Technology

Safeguarding our soldiers involved in global conflicts requires innovative solutions that meet and exceed the challenges faced in modern warfare.

INL has a long history of supporting our service men and women through the development of advanced personnel and tank armor, explosives detection technologies, unmanned robotics systems and chemical demilitarization technology.

Special Programs

INL engineers are recognized experts in developing and testing advanced materials, sensors and specialty products for national security operations. We provide customers within the Department of Defense and other federal agencies with essential information analysis and operational support.





*Critical infrastructure
and communications
testing facilities*



*Materials science research
and development*



*Commercial robot platforms with
autonomous decision-making capabilities*

Energy and Environment – *Solving complex problems*

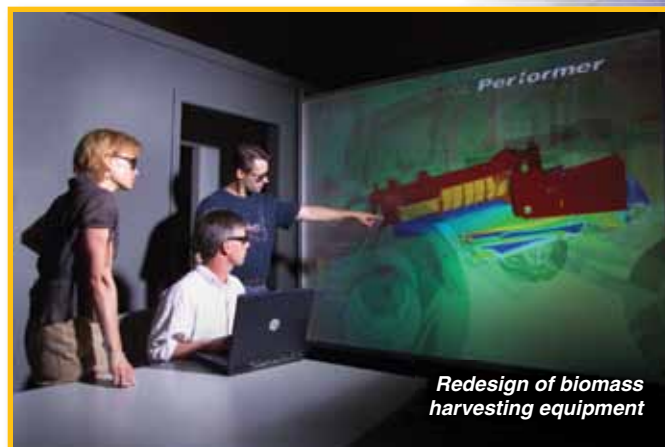
INL's award-winning researchers address many of the nation's most pressing issues – including the rebirth of nuclear energy – and provide crosscutting technical capabilities that enable execution of INL's energy and environmental missions. They work to integrate energy resource development, production and use, water management and environmental protections into dynamic and high-functioning systems. These scientists and engineers also resolve process inefficiencies and uncertainties associated with efforts to integrate novel energy systems.

Advanced Energy Systems – To address the nation's complex energy security challenges, INL's scientists and engineers are exploring advanced energy systems – and carbon management approaches – looking for ways to more efficiently produce and use energy, while promoting economic growth. The work of these researchers spans fossil, nuclear, renewable and unconventional energy systems integration; enhanced coal-to-liquid conversion and biofuel technology development; advanced vehicle and transportation technologies testing, including advanced energy storage research; and virtual and computational engineering, modeling and simulation.

Environmental Sustainability – Knowing that technological advances in the use and application of energy resources are best accomplished in concert with environmental protocols and protections, INL's environmental researchers develop strategies for water use and management of hazardous and radioactive materials. They also research methods to assure that byproducts and wastes from nuclear and nonnuclear energy developments

can be safely avoided, minimized, treated, stored, transported and disposed of. This research aims to preserve the nation's ability to safely produce and use energy resources and improve and protect environmental conditions that support sustainability.

Broad Research Support – INL's researchers also increase knowledge and understanding of chemical, biological and geophysical processes in subsurface environments; discover and develop synthetic polymers for energy storage and environmental barriers; devise measurement systems and noncontact sensors; capture and use organisms living in extreme environments for industrial and environmental purposes; fabricate and test structural materials; and innovate autonomous robotic/human systems to protect personal safety and environmental quality.



*Chemical analysis
using secondary ion
mass spectrometer*



*Environmental fate
and transport research*



*Gadolinium alloy for use in
spent nuclear fuel storage canisters*



INL Facilities – *The places of progress*

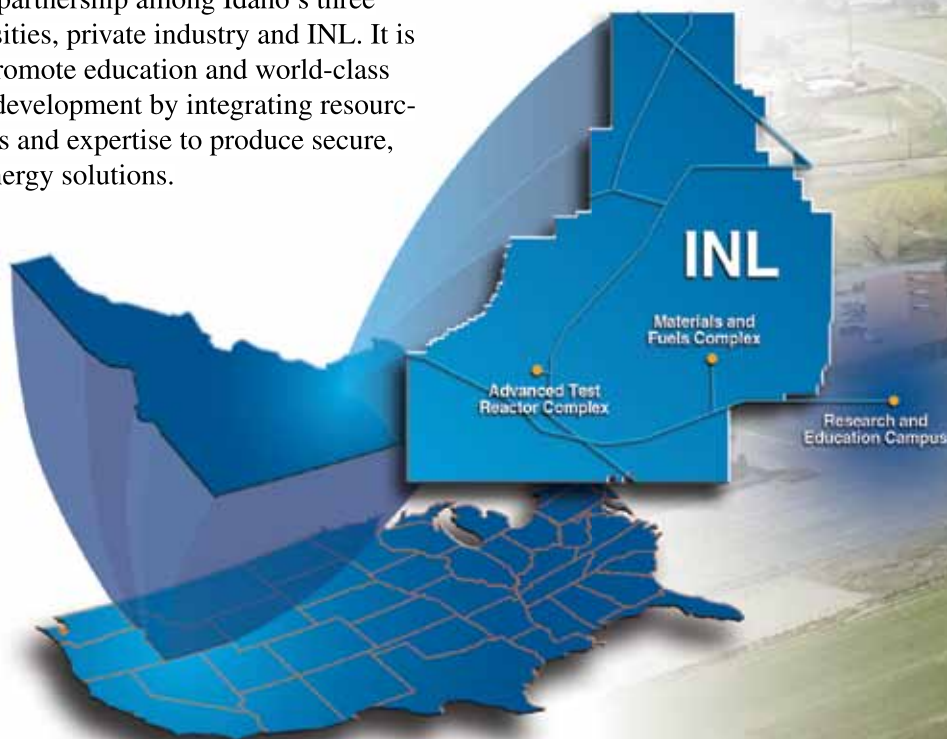
INL's unique physical assets allow it to be an international leader in nuclear energy technology research and development. The laboratory has multiple facility areas:

Research and Education Campus is the collective name for INL's administrative, technical support and computer facilities in Idaho Falls, as well as the in-town laboratories – most notably the INL Research Center – where researchers work on a wide variety of advanced scientific research and development projects.

A key energy research facility in Idaho Falls is the Center for Advanced Energy Studies, a collaborative partnership among Idaho's three public universities, private industry and INL. It is designed to promote education and world-class research and development by integrating resources, capabilities and expertise to produce secure, sustainable energy solutions.

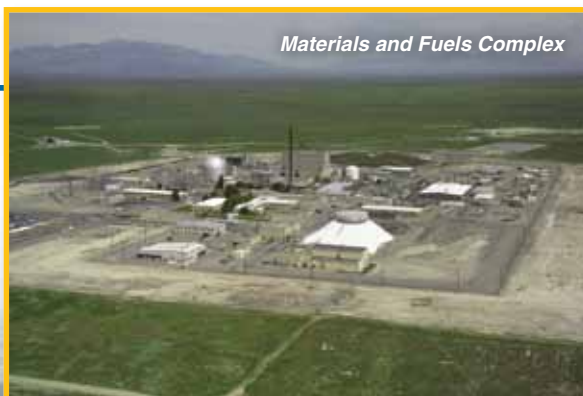
The **Advanced Test Reactor Complex** is dedicated to research supporting Department of Energy missions, including nuclear technology research. It includes the Advanced Test Reactor, Advanced Test Reactor-Critical Facility, Hot Cell Facility, Radiation Measurements Laboratory, Radiochemistry Laboratory, and Safety and Tritium Applied Research Facility.

Materials and Fuels Complex is a prime testing center for advanced technologies associated with nuclear power systems. This complex includes the Hot Fuel Examination, Fuel Conditioning, Fuel Manufacturing, Space and Security Power Systems, and Transient Reactor Test facilities.





Advanced Test Reactor Complex



Materials and Fuels Complex



*Part of the Research
and Education Campus*

Career Opportunities – *Join the energy renaissance*

Idaho National Laboratory recognizes the value of fresh ideas and perspectives.

Opportunities exist in fields as diverse as:

- Accounting and Finance
- Biology
- Chemical Engineering
- Chemistry
- Computer Engineering
- Computer Science
- Cyber Security
- Electrical Engineering
- Geosciences
- Life and Earth Sciences
- Mechanical Engineering
- Materials Science
- Nuclear Engineering
- Physics
- Research
- Telecommunications

It's easy to let us know you'd like to find out more about starting a career at Idaho National Laboratory:

- Go to <http://www.inl.gov/careers/>.
- Find a position you're interested in.
- Create your Candidate Profile.
- Attach your Candidate Profile to the posting of interest.
- Submit your information for consideration.

INL is an equal opportunity employer M/F/D/V.

For more information about Idaho National Laboratory, visit www.inl.gov.

For specific career inquiries, contact any of our recruiting staff. Or, contact the INL careers hot line at (208) 526-5888.

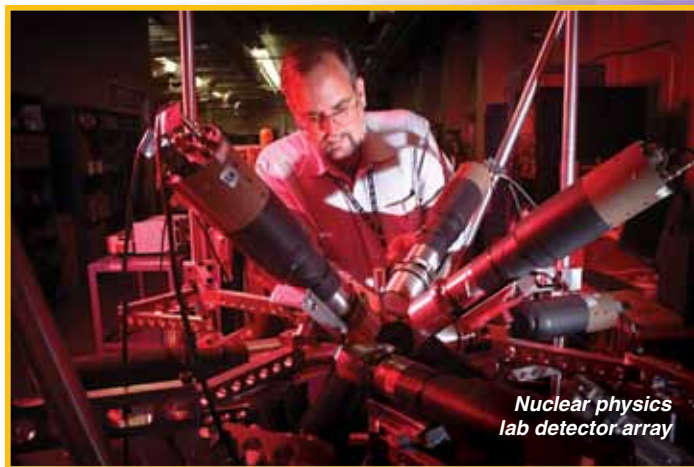
Thomas Steele – *Nuclear S&T / NGNP / Nuclear Operations Recruiter*, thomas.steele@inl.gov

Vanessa Van Dyk – *Energy & Environment / Business Management Recruiter*, vanessa.vandyk@inl.gov

Anabel Gonzalez – *Applied Engineering / SMC / ES&H Recruiter*, anabel.gonzalez@inl.gov

Domini Clark – *National & Homeland Security Recruiter*, domini.clark@inl.gov

Travis Spurgeon – *Recruiting Manager*, travis.spurgeon@inl.gov



*Nuclear physics
lab detector array*





Multifaceted research



Project collaboration



*Research into
biomass conversion rates*

Internship Programs – *Get started now*

INL Internship Programs provide opportunities that are challenging, innovative and focused on today's cutting-edge technologies. Through these programs, high school and university undergraduate and graduate students are teamed up with highly qualified INL scientists, engineers and business professionals as mentors.

Internship Opportunities

A **High School Internship** offers an eight-week career development experience during the summer, which immerses a student in a scientific, technical, research or business project. The program is open to students who are 16 years or older and enrolled in an educational program as defined by the state of Idaho.

An **Undergraduate Internship** offers 10 to 16 weeks of full-time research, technical or business experience during the summer with an INL mentor. Or, the program also offers an internship experience during an academic semester on a college or university campus under the supervision of a faculty researcher.

A **Graduate Internship** offers full- or part-time research experience at INL or on the campus of a college or university.

The **Postdoctoral Program** provides a salaried, research/training position to a college or university graduate who has recently earned a doctoral degree. The program offers the research associate full-time research experience in one of INL's ongoing scientific or technical projects under the supervision of a laboratory scientist/engineer mentor. It provides a bridge

to professional employment, often at INL. Appointments are limited to 37 months.

Eligibility Requirements

All internship participants become INL temporary employees. Requirements for university student interns and foreign national students include full-time enrollment at an accredited college or university, and a minimum cumulative GPA of 3.0.

A foreign national student is eligible for an internship if the student attends an accredited U.S. university or college and has a Curricular Practical Training authorization from the university holding the student's current visa.



Please visit www.inl.gov/education/internships for more information on Internship Programs.



*Hands-on
lab experience*



*Interactive learning
with colleagues*



*Unique skill
development*

A Great Place to Live – *One of the nation's best kept secrets*

The area is one of the fastest growing technical environments in the nation and has the largest concentration of technical professionals in the northern Rocky Mountain region. Approximately 15 percent of workers in the area are in the high-technology industry, compared to the national average of just 9 percent.

Idaho Falls, which prides itself on a small-town friendly atmosphere, was recently named the tenth most secure place to live among American small towns and second for its low cost of living.

Idaho Falls has unmatched recreational opportunities. The area is in the heart of some of the best outdoor recreation areas in the world, with access to Yellowstone National Park, Grand Teton National Park, Craters of the Moon National Monument, Sun Valley, scenic Shoshone Falls, Jackson Hole, Salt Lake City and areas of Nevada, to name a few.



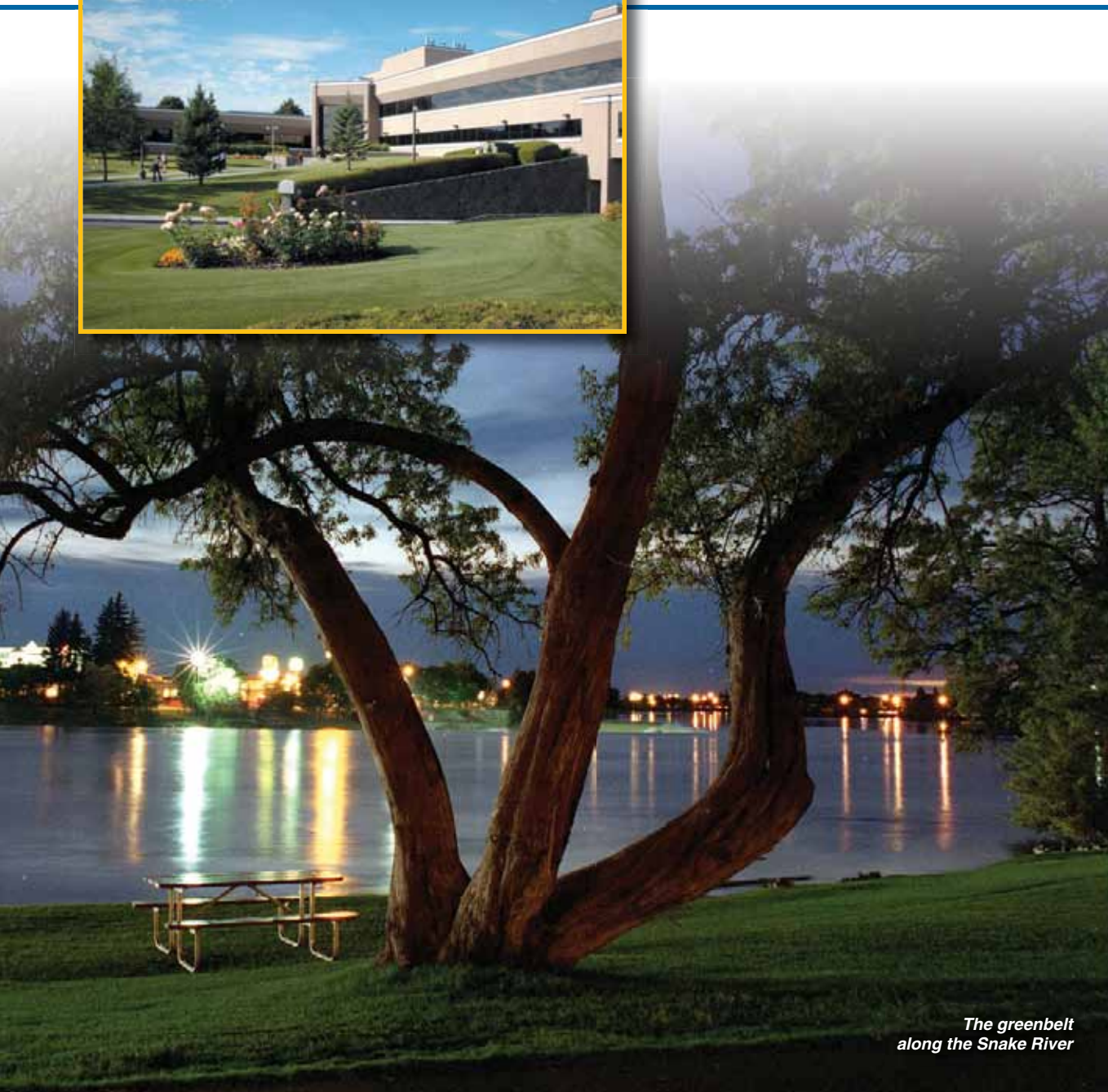
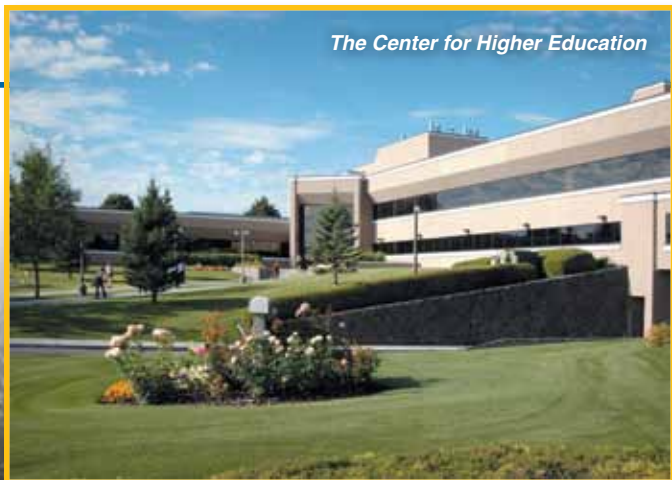
Historic home in Idaho Falls



Upper Mesa Falls



The Center for Higher Education



*The greenbelt
along the Snake River*

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Travis Spurgeon – *Recruiting Manager*,
travis.spurgeon@inl.gov



U.S. DEPARTMENT OF
ENERGY

INL is one of the U.S. Department of Energy's multiprogram national laboratories and is managed by Battelle Energy Alliance, LLC.